



TETRA TECH NUS

N00158.AR.000267  
NAS WILLOW GROVE  
5090.3a

PHIL-21219

**TO:** RUSS TURNER **DATE:** JULY 16, 2007

**FROM:** MEGAN N. RITCHIE **COPIES:** FILE

**SUBJECT:** INORGANIC DATA VALIDATION – METALS, CYANIDE, PERCENT SOLIDS  
NAS JRB WILLOW GROVE SITE 3, WILLOW GROVE, PENNSYLVANIA  
SDG NO. C7E040173

**SAMPLES:** 1/Aqueous/

03-FB-050307

4/Solid/

03TP09-0506-01 03TP09-0506-02 03TP10-0304-02 03TP10-0405-01

## OVERVIEW

The sample set for the NAS JRB Willow Grove Site 3 Test Pits – Willow Grove, PA, SDG C7E040173 consists of 4 solid environmental samples (designated 03TP09- and 03TP10-) and one field quality control (QC) blank (designated 03-FB-). No matrix spike samples were designated for this sample set. No field duplicate pairs were included in this sample set. All samples were analyzed for target analyte list (TAL) metals and cyanide.

The samples were collected by Tetra Tech NUS on May 3, 2007 and analyzed by Severn Trent Laboratories (STL) of Pittsburgh, Pennsylvania.

EPA SW-846 Methods were conducted using 6010B for ICP-AES metals, 7471A for mercury, and 9012A for cyanide. Percent solids were analyzed by EPA Method 160.3 modified.

## SUMMARY

Most analytes were successfully analyzed in all samples. The findings offered in this report are based upon a general review of all available data including data completeness, holding times until analysis, calibration data, laboratory blank results, ICP interference check samples, matrix spike (MS) and matrix spike duplicate (MSD) results, laboratory control spike (LCS) results, field duplicate results, ICP serial dilution results, detection limits, and analyte quantitation.

Areas of concern with respect to data quality are listed below as follows:

## MINOR PROBLEMS

- Sodium and thallium exhibited negative concentrations with absolute values greater than the MDL in ICS solution A, which indicates the potential for negative bias to an extent that depends on the sample mineral concentrations. For non-detected sodium and thallium results, when the MDL was less than the absolute value of the predicted magnitude of negative interference, such results were qualified as unusable (UR).

## MINOR PROBLEMS

- Arsenic and sodium exhibited negative concentrations with absolute values greater than the MDL in ICS solution A, which indicates the potential for negative bias to an extent that depends on the sample mineral concentrations. For positive arsenic and sodium results, when the sample concentration was less than 10 times the absolute value of the expected interference, such results were qualified as biased low (L).
- Selenium, sodium, and thallium exhibited negative concentrations with absolute values greater than the MDL in ICS solution A, which indicates the potential for negative bias to an extent that depends on the sample mineral concentrations. For non-detected selenium, sodium, and thallium results, when the absolute value of the predicted magnitude of negative interference was less than the MDL but more than one-tenth of the MDL, such results were qualified as biased low (UL).
- The MSD recovery for chromium exceeded the upper QC limit of 120%. All positive results for these analytes were qualified as biased high (K).
- The MS/MSD recoveries for antimony and mercury were below the lower QC limit of 80%. All positive and non-detected results for antimony and mercury were qualified as biased low (L/UL).

## NOTES

Aluminum, antimony, beryllium, lead, manganese, potassium, silver, and zinc were detected in the laboratory blanks. No action was taken for these analytes because the results exceeded the action level or there were no positive results for these analytes.

A 25X dilution was required for manganese in sample 03TP10-0405-01 because the original analysis concentration for zinc was over the instruments linear range. This sample was also analyzed at a dilution for selenium and thallium due to inter-element corrections associated with manganese.

The field blank data from samples 03-FB-050307 was not used to qualify data for blank contamination. This sample was of the source water used to clean the excavator between test pits. The environmental soil samples were collected from soil that did not have contact with the bucket of the excavator.

The cyanide and percent solids data are acceptable as reported by the laboratory.

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Russ Turner  
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## EXECUTIVE SUMMARY

**Lab ratory Performance:** Many analytes displayed signals with absolute values greater than the MDL in the ICP Interference Check Sample A. Three of these analytes may have produced bias in the sample analyses. Several analytes were present in the laboratory blanks.

**Other Factors Affecting Data Quality:** MS/MSD recoveries were outside QC criteria for two analytes.

The data for these analyses were reviewed with reference to the EPA "Functional Guidelines for Inorganic Data Review", as amended for use within EPA Region 3 (4/93).

The text of this report has been formatted to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the Functional Guidelines and the Quality Assurance Project Plan (QAPjP)."

Megan N. Ritchie

Megan N. Ritchie  
Chemist

Russ Sloboda

Tetra Tech NUS, Inc.  
Russ Sloboda  
Data Validation Quality Assurance Officer

### Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

## **APPENDIX A**

### **Qualified Analytical Results**

**PROJ\_NO:** 2192

SDG: C7E040173 MEDIA: SOIL DATA FRACTION: M

nsample 03TP09-0506-01  
 samp\_date 5/3/2007  
 lab\_id C7E040173001  
 qc\_type NM  
 units MG/KG  
 Pct\_Solids 80.0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
ALUMINUM	20700		
ANTIMONY	0.4	UL	D
ARSENIC	2.5		
BARIUM	61.3		
BERYLLIUM	0.67		
CADMIUM	0.087	U	
CALCIUM	485		
CHROMIUM	18	K	D
COBALT	2.5		
COPPER	25.1		
IRON	9660		
LEAD	7.6		
MAGNESIUM	798		
MANGANESE	41.6		
MERCURY	0.023	L	D
NICKEL	9		
POTASSIUM	388		
SELENIUM	0.33	UL	K
SILVER	0.037	U	
SODIUM	19.6	UL	K
THALLIUM	0.57	UL	K
VANADIUM	32.5		
ZINC	12.1		

nsample 03TP09-0506-02  
 samp\_date 5/3/2007  
 lab\_id C7E040173002  
 qc\_type NM  
 units MG/KG  
 Pct\_Solids 79.0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
ALUMINUM	17800		
ANTIMONY	0.4	UL	D
ARSENIC	2.8	L	K
BARIUM	46.1		
BERYLLIUM	0.92		
CADMIUM	0.088	U	
CALCIUM	402		
CHROMIUM	6.3	K	D
COBALT	3.8		
COPPER	60.8		
IRON	19900		
LEAD	4.5		
MAGNESIUM	1020		
MANGANESE	52		
MERCURY	0.027	L	D
NICKEL	5.8		
POTASSIUM	240		
SELENIUM	0.33	UL	K
SILVER	0.038	U	
SODIUM	28.1	L	K
THALLIUM	0.57	UR	K
VANADIUM	19.2		
ZINC	30		

nsample 03TP10-0304-02  
 samp\_date 5/3/2007  
 lab\_id C7E040173004  
 qc\_type NM  
 units MG/KG  
 Pct\_Solids 83.0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
ALUMINUM	14300		
ANTIMONY	0.39	UL	D
ARSENIC	2	L	K
BARIUM	129		
BERYLLIUM	1.3		
CADMIUM	0.084	U	
CALCIUM	379		
CHROMIUM	5.7	K	D
COBALT	11.4		
COPPER	148		
IRON	17500		
LEAD	4.2		
MAGNESIUM	451		
MANGANESE	1140		
MERCURY	0.024	L	D
NICKEL	12.7		
POTASSIUM	168		
SELENIUM	0.32	UL	K
SILVER	0.036	U	
SODIUM	38.7	L	K
THALLIUM	0.55	UR	K
VANADIUM	15.4		
ZINC	20.4		

**PROJ\_NO:** 2192

SDG: C7E040173 MEDIA: SOIL DATA FRACTION: M

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nsample 03TP10-0405-01  
samp\_date 5/3/2007  
lab\_id C7E040173003  
qc\_type NM  
units MG/KG  
Pct\_Solids 82.0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
ALUMINUM	20800		
ANTIMONY	0.39	UL	D
ARSENIC	7		
BARIUM	287		
BERYLLIUM	1.7		
CADMIUM	0.085	U	
CALCIUM	704		
CHROMIUM	22.5	K	D
COBALT	82.8		
COPPER	43		
IRON	23000		
LEAD	35.7		
MAGNESIUM	868		
MANGANESE	20000		
MERCURY	0.074	L	D
NICKEL	15.6		
POTASSIUM	286		
SELENIUM	8	U	
SILVER	3.6		
SODIUM	19.1	UR	K
THALLIUM	13.9	U	
VANADIUM	34.9		
ZINC	28.3		

**PROJ\_NO:** 2192

SDG: C7E040173 MEDIA: WATER DATA FRACTION: M

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nsample 03-FB-050307

samp\_date 5/3/2007

lab\_id C7E040173006

qc\_type NM

units UG/L

Pct\_Solids

DUP\_OF:

Parameter	Result	Val Qual	Qual Code
ALUMINUM	11.2		
ANTIMONY	3.2	U	
ARSENIC	3.5		
BARIUM	252		
BERYLLIUM	0.43		
CADMUM	0.7	U	
CALCIUM	51100		
CHROMIUM	0.93	U	
COBALT	0.53	U	
COPPER	26.2		
IRON	18	U	
LEAD	3.3		
MAGNESIUM	24200		
MANGANESE	16.7		
MERCURY	0.055	U	
NICKEL	1.2	U	
POTASSIUM	1650		
SELENIUM	2.7		
SILVER	0.3	U	
SODIUM	16700		
THALLIUM	4.6	U	
VANADIUM	1.6		
ZINC	34		

**PROJ\_NO:** 2192

SDG: C7E040173 MEDIA: SOIL DATA FRACTION: MISC

nsample 03TP09-0506-01  
samp\_date 5/3/2007  
lab\_id C7E040173001  
qc\_type NM  
Pct\_Solids 80.0  
DUP\_OF:

Parameter	units	Result	Val Qual	Qual Code
CYANIDE	MG/KG	0.63	U	
PERCENT SOLIDS	%	79.9		

nsample 03TP09-0506-02  
samp\_date 5/3/2007  
lab\_id C7E040173002  
qc\_type NM  
Pct\_Solids 79.0  
DUP\_OF:

Parameter	units	Result	Val Qual	Qual Code
CYANIDE	MG/KG	0.63	U	
PERCENT SOLIDS	%	79.4		

nsample 03TP10-0304-02  
samp\_date 5/3/2007  
lab\_id C7E040173004  
qc\_type NM  
Pct\_Solids 83.0  
DUP\_OF:

Parameter	units	Result	Val Qual	Qual Code
CYANIDE	MG/KG	0.6	U	
PERCENT SOLIDS	%	82.7		

**PROJ\_NO:** 2192

SDG: C7E040173 MEDIA: SOIL DATA FRACTION: MISC

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nsample 03TP10-0405-01

samp\_date 5/3/2007

lab\_id C7E040173003

qc\_type NM

Pct\_Solids 82.0

DUP\_OF:

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Parameter	units	Result	Val Qual	Qual Code
CYANIDE	MG/KG	0.14		
PERCENT SOLIDS	%	81.9		

**Data Qualifier Key:**

- B - Positive result is considered to be an artifact of blank contamination and should not be considered present.
- J - Value is considered estimated due to exceedance of technical quality control or because result is less than the Contract Required Quantitation Limit (CRQL).
- L - Positive result is considered biased low due to exceedance of technical quality control criteria.
- U - Value is a non-detected result as reported by the laboratory.
- UL - Non-detected result is considered biased low due to exceedance of technical quality control criteria.

**Qualifier Codes:**

- a = Lab Blank Contamination
- b = Field Blank Contamination
- c = Calibration (i.e., %RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- d = MS/MSD Noncompliance
- e = LSC/LSCD Noncompliance
- f = Laboratory Duplicate Imprecision
- g = Field Duplicate Imprecision
- h = Holding Time Exceedance
- i = ICP Serial Dilution Noncompliance
- j = GFAA PDS – GFAA MSA's r<0.995 (correlation coefficient)
- k = ICP Interference – include ICSAB %Rs
- l = Instrument Calibration Range Exceedance
- m = Sample Preservation
- n = Internal Standard Noncompliance
- o = Poor Instrument Performance (i.e. baseline drifting)
- p = Uncertainty Near Detection Limit (<2 x IDL for inorganics and < CRQL for organics)
- q = Other Problems (can encompass of number of issues)
- r = Surrogates Recovery Noncompliance
- s = Pesticide/PCB Resolution
- t = % Breakdown Noncompliance for DDT and Endrin
- u = Pesticide/PCB % Difference Between Columns for Positive Results
- v = Non-linear Calibrations, Tuning r <0.995 (correlation coefficient)

**APPENDIX B**

**Results as Reported by the Laboratory**

## Tetra Tech NUS, Inc

Client Sample ID: 03TP09-0506-01

## TOTAL Metals

Lot-Sample #...: C7E040173-001

Matrix.....: SOLID

Date Sampled...: 05/03/07

Date Received..: 05/04/07

% Moisture....: 20

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
<b>Prep Batch #...: 7128178</b>							
Silver	ND	0.63	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AF	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.037	
Aluminum	20700 B	25.0	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AG	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 1.0	
Arsenic	2.5	1.3	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AH	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.41	
Barium	61.3	25.0	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AJ	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.13	
Beryllium	0.67	0.50	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AK	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.052	
Calcium	485 J	626	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AL	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 5.0	
Cadmium	ND	0.63	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AM	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.087	
Cobalt	2.5 J	6.3	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AN	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.066	
Chromium	18.0	0.63	mg/kg	SW846 6010B		05/09-05/16/07 JV93R1AP	
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.12	

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP09-0506-01

## TOTAL Metals

Lot-Sample #....: C7E040173-001

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS			ANALYSIS DATE	ORDER #
Copper	25.1	3.1	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AQ
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.14	
Iron	9660	12.5	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AR
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 2.3	
Potassium	388 J,B	626	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AT
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 9.4	
Magnesium	798	626	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AU
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 1.3	
Manganese	41.6 B	1.9	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AV
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.014	
Sodium	ND	626	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AW
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 19.6	
Nickel	9.0	5.0	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AX
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.15	
Lead	7.6	0.38	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1AO
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.20	
Antimony	ND	1.3	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1Al
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.40	
Selenium	ND	0.63	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1A2
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.33	

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP09-0506-01

## TOTAL Metals

Lot-Sample #....: C7E040173-001

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Thallium	ND	1.3	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1A3
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.57	
Vanadium	32.5	6.3	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1A4
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.13	
Zinc	12.1 B	2.5	mg/kg		SW846 6010B	05/09-05/16/07	JV93R1A5
		Dilution Factor: 1		Analysis Time...: 15:20		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.21	
<b>Prep Batch #....: 7144113</b>							
Mercury	0.023 J	0.041	mg/kg		SW846 7471A	05/24/07	JV93R1AE
		Dilution Factor: 1		Analysis Time...: 14:14		Analyst ID.....: 400491	
		Instrument ID...: HGHYDRA		MS Run #.....: 7144073		MDL.....: 0.0089	

**NOTE(S) :**

Results and reporting limits have been adjusted for dry weight.

B Blank contamination: Target analyte was detected at a reportable level.

J Estimated Result: Result is less than RL and greater than or equal to the MDL.

Tetra Tech NUS, Inc

Client Sample ID: 03TP09-0506-02

## TOTAL Metals

**Lot-Sample #....:** C7E040173-002      **Matrix.....:** SOLID  
**Date Sampled...:** 05/03/07      **Date Received..:** 05/04/07  
**% Moisture.....:** 21

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
<b>Prep Batch #....: 7128178</b>						
Silver	ND	0.63	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AN
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.038
Aluminum	17800 B	25.2	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AP
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	1.0
Arsenic	2.8	1.3	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AQ
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.41
Barium	46.1	25.2	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AR
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.13
Beryllium	0.92	0.50	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AT
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.053
Calcium	402 J	630	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AU
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	5.0
Cadmium	ND	0.63	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AV
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.088
Cobalt	3.8 J	6.3	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AW
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.066
Chromium	6.3	0.63	mg/kg	SW846 6010B	05/09-05/16/07	JV9331AX
		Dilution Factor: 1		Analysis Time..: 15:03	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.12

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP09-0506-02

## TOTAL Metals

Lot-Sample #....: C7E040173-002

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Copper	60.8	3.1	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A0
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 0.15
Iron	19900	12.6	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A1
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 2.3
Potassium	240 J,B	630	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A2
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 9.4
Magnesium	1020	630	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A3
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 1.3
Manganese	52.0 B	1.9	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A4
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 0.014
Sodium	28.1 J	630	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A5
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 19.7
Nickel	5.8	5.0	mg/kg		SW846 6010B	05/09-05/16/07	JV9331A6
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 0.16
Lead	4.5	0.38	mg/kg		SW846 6010B	05/09-05/16/07	JV9331AA
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 0.20
Antimony	ND	1.3	mg/kg		SW846 6010B	05/09-05/16/07	JV9331AC
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 0.40
Selenium	ND	0.63	mg/kg		SW846 6010B	05/09-05/16/07	JV9331AD
		Dilution Factor: 1			Analysis Time...: 15:03		Analyst ID.....: 022952
		Instrument ID...: TRACEICP			MS Run #.....: 7128111		MDL.....: 0.33

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP09-0506-02

## TOTAL Metals

Lot-Sample #....: C7E040173-002

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Thallium	ND	1.3	mg/kg		SW846 6010B	05/09-05/16/07	JV9331AE
		Dilution Factor: 1		Analysis Time...: 15:03		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.57	
Vanadium	19.2	6.3	mg/kg		SW846 6010B	05/09-05/16/07	JV9331AF
		Dilution Factor: 1		Analysis Time...: 15:03		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.13	
Zinc	30.0 B	2.5	mg/kg		SW846 6010B	05/09-05/16/07	JV9331AG
		Dilution Factor: 1		Analysis Time...: 15:03		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.21	
Prep Batch #....: 7144113							
Mercury	0.027 J	0.042	mg/kg		SW846 7471A	05/24/07	JV9331AM
		Dilution Factor: 1		Analysis Time...: 14:15		Analyst ID.....: 400491	
		Instrument ID...: HGHYDRA		MS Run #.....: 7144073		MDL.....: 0.0089	

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

B Blank contamination: Target analyte was detected at a reportable level.

J Estimated Result: Result is less than RL and greater than or equal to the MDL.

## Tetra Tech NUS, Inc

Client Sample ID: 03TP10-0304-02

## TOTAL Metals

Lot-Sample #....: C7E040173-004  
 Date Sampled....: 05/03/07 Date Received..: 05/04/07  
 % Moisture.....: 17 Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-ANALYSIS DATE</u>	<u>WORK ORDER #</u>
<b>Prep Batch #....: 7128178</b>						
Silv r	ND	0.60	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AN
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.036
Aluminum	14300 B	24.2	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AP
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.96
Arsenic	2.0	1.2	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AQ
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.40
Barium	129	24.2	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AR
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.12
Beryllium	1.3	0.48	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AT
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.050
Calcium	379 J	604	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AU
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	4.8
Cadmium	ND	0.60	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AV
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.084
Cobalt	11.4	6.0	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AW
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.064
Chromium	5.7	0.60	mg/kg	SW846 6010B	05/09-05/16/07	JV9391AX
		Dilution Factor: 1		Analysis Time...: 15:14	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.11

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP10-0304-02

## TOTAL Metals

Lot-Sample #...: C7E040173-004

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS	ANALYSIS DATE			
Copper	148	3.0	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A0
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	0.14
Iron	17500	12.1	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A1
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	2.2
Potassium	168 J,B	604	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A2
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	9.1
Magnesium	451 J	604	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A3
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	1.2
Manganese	1140 B	1.8	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A4
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	0.014
Sodium	38.7 J	604	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A5
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	18.9
Nickel	12.7	4.8	mg/kg	SW846 6010B		05/09-05/16/07	JV9391A6
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	0.15
Lead	4.2	0.36	mg/kg	SW846 6010B		05/09-05/16/07	JV9391AA
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	0.19
Antimony	ND	1.2	mg/kg	SW846 6010B		05/09-05/16/07	JV9391AC
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	0.39
Selenium	ND	0.60	mg/kg	SW846 6010B		05/09-05/16/07	JV9391AD
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....:	0.32

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Tetra Tech NUS, Inc

Client Sample ID: 03TP10-0304-02

**TOTAL Metals**

Lot-Sample #....: C7E040173-004

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK	ORDER #
		LIMIT	UNITS	ANALYSIS DATE				
Thallium	ND	1.2	mg/kg	05/09-05/16/07	SW846 6010B	05/09-05/16/07	JV9391AE	
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....: 022952		
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.55		
Vanadium	15.4	6.0	mg/kg	05/09-05/16/07	SW846 6010B	05/09-05/16/07	JV9391AF	
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....: 022952		
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.13		
Zinc	20.4 B	2.4	mg/kg	05/09-05/16/07	SW846 6010B	05/09-05/16/07	JV9391AG	
		Dilution Factor: 1		Analysis Time...: 15:14		Analyst ID.....: 022952		
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.20		
Prep Batch #....:	7144113							
Mercury	0.024 J	0.040	mg/kg	05/24/07	SW846 7471A	05/24/07	JV9391AM	
		Dilution Factor: 1		Analysis Time...: 14:18		Analyst ID.....: 400491		
		Instrument ID...: HGHDRA		MS Run #.....: 7144073		MDL.....: 0.0086		

**NOTE(S) :**

Results and reporting limits have been adjusted for dry weight.

B Blank contamination: Target analyte was detected at a reportable level.

J Estimated Result: Result is less than RL and greater than or equal to the MDL.

## Tetra Tech NUS, Inc

Client Sample ID: 03TP10-0405-01

## TOTAL Metals

Lot-Sample #....: C7E040173-003

Matrix.....: SOLID

Date Sampled...: 05/03/07

Date Received..: 05/04/07

\* Moisture.....: 18

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....:	7128178					
Silver	3.6	0.61	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AN
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.036
Aluminum	20800 B	24.4	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AP
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.97
Arsenic	7.0	1.2	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AQ
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.40
Barium	287	24.4	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AR
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.12
Beryllium	1.7	0.49	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AT
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.051
Calcium	704	611	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AU
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	4.8
Cadmium	ND	0.61	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AV
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.085
Cobalt	82.8	6.1	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AW
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.064
Chromium	22.5	0.61	mg/kg	SW846 6010B	05/09-05/16/07	JV9351AX
		Dilution Factor: 1		Analysis Time...: 15:09	Analyst ID.....:	022952
		Instrument ID...: TRACEICP		MS Run #.....: 7128111	MDL.....:	0.11

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP10-0405-01

## TOTAL Metals

Lot-Sample #....: C7E040173-003

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS	ANALYSIS DATE			
Copper	43.0	3.1	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A0
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.14	
Iron	23000	12.2	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A1
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 2.2	
Potassium	286 J,B	611	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A2
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 9.2	
Magnesium	868	611	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A3
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 1.3	
Manganese	20000 B	45.8	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A4
		Dilution Factor: 25		Analysis Time...: 22:57		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.35	
Sodium	ND	611	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A5
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 19.1	
Nickel	15.6	4.9	mg/kg	SW846 6010B		05/09-05/16/07	JV9351A6
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.15	
Lead	35.7	0.37	mg/kg	SW846 6010B		05/09-05/16/07	JV9351AA
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.19	
Antimony	ND	1.2	mg/kg	SW846 6010B		05/09-05/16/07	JV9351AC
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.39	
Selenium	ND	15.3	mg/kg	SW846 6010B		05/09-05/16/07	JV9351AD
		Dilution Factor: 25		Analysis Time...: 22:57		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 8.0	

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## Tetra Tech NUS, Inc

Client Sample ID: 03TP10-0405-01

## TOTAL Metals

Lot-Sample #...: C7E040173-003

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING			METHOD	ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Thallium	ND	30.5	mg/kg		SW846 6010B	05/09-05/16/07	JV9351AE
		Dilution Factor: 25		Analysis Time...: 22:57		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 13.9	
Vanadium	34.9	6.1	mg/kg		SW846 6010B	05/09-05/16/07	JV9351AF
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.13	
Zinc	28.3 B	2.4	mg/kg		SW846 6010B	05/09-05/16/07	JV9351AG
		Dilution Factor: 1		Analysis Time...: 15:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....: 7128111		MDL.....: 0.21	
Prep Batch #...: 7144113							
Mercury	0.074	0.040	mg/kg		SW846 7471A	05/24/07	JV9351AM
		Dilution Factor: 1		Analysis Time...: 14:17		Analyst ID.....: 400491	
		Instrument ID...: HGHYDRA		MS Run #.....: 7144073		MDL.....: 0.0087	

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

B Blank contamination: Target analyte was detected at a reportable level.

J Estimated Result: Result is less than RL and greater than or equal to the MDL.

## Tetra Tech NUS, Inc

Client Sample ID: 03-FB-050307

## TOTAL Metals

Lot-Sample #....: C7E040173-006

Date Sampled...: 05/03/07

Date Received...: 05/04/07

Matrix.....: WATER

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
<b>Prep Batch #....: 7128175</b>							
Silver	ND	5.0	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AG	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 0.30	
Aluminum	11.2 J,B	200	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AH	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 8.0	
Arsenic	3.5 J	10.0	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AJ	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 3.3	
Barium	252 B	200	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AK	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 1.0	
Beryllium	0.43 J,B	4.0	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AL	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 0.42	
Calcium	51100	5000	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AM	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 39.5	
Cadmium	ND	5.0	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AN	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 0.70	
Cobalt	ND	50.0	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AP	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 0.53	
Chromium	ND	5.0	ug/L	SW846 6010B		05/09-05/16/07 JV94K1AQ	
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 0.93	

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## Tetra Tech NUS, Inc

Client Sample ID: 03-FB-050307

## TOTAL Metals

Lot-Sample #....: C7E040173-006

Matrix.....: WATER

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS			ANALYSIS DATE	ORDER #
Copper	26.2	25.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1AR
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 1.2	
Iron	ND	100	ug/L		SW846 6010B	05/09-05/16/07	JV94K1AT
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 18.0	
Potassium	1650 J,B	5000	ug/L		SW846 6010B	05/09-05/16/07	JV94K1AU
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 75.0	
Magnesium	24200	5000	ug/L		SW846 6010B	05/09-05/16/07	JV94K1AV
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 10.2	
Manganese	16.7	15.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1AW
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 0.11	
Sodium	16700	5000	ug/L		SW846 6010B	05/09-05/16/07	JV94K1AX
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 157	
Nickel	ND	40.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1A0
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 1.2	
Lead	3.3 B	3.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1A1
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 1.6	
Antimony	ND	10.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1A2
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 3.2	
Selenium	2.7 J	5.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1A3
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 2.6	

(Continued on next page)

## Tetra Tech NUS, Inc

Client Sample ID: 03-FB-050307

## TOTAL Metals

Lot-Sample #....: C7E040173-006

Matrix.....: WATER

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION-	WORK
		LIMIT	UNITS			ANALYSIS DATE	ORDER #
Thallium	ND	10.0	ug/L		SW846 6010B	05/09-05/16/07	JV94K1A4
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 4.6	
Vanadium	1.6 J	50.0	ug/L	SW846 6010B		05/09-05/16/07	JV94K1AS
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 1.0	
Zinc	34.0 B	20.0	ug/L	SW846 6010B		05/09-05/16/07	JV94K1A6
		Dilution Factor: 1		Analysis Time...: 14:09		Analyst ID.....: 022952	
		Instrument ID...: TRACEICP		MS Run #.....:		MDL.....: 1.7	
<b>Prep Batch #....: 7136135</b>							
Mercury	ND	0.20	ug/L	SW846 7470A	05/16/07		JV94K1AF
		Dilution Factor: 1		Analysis Time...: 15:10		Analyst ID.....: 400491	
		Instrument ID...: HGHYDRA		MS Run #.....: 7136078		MDL.....: 0.055	

**NOTE(S) :**

J Estimated Result: Result is less than RL and greater than or equal to the MDL.

B Blank contamination: Target analyte was detected at a reportable level.

**Willow Grove CTO 003**

***Cyanide, Total***

Lab Name:	STL PITTSBURGH	Method:	SW846	9012A
Client Name:	Tetra Tech NUS, Inc	Lot Number:	C7E040173	
Matrix:	SOLID			

**Distillation procedure**

Client Sample ID	Sample Number	Workorder	Result	Units	Min. Detection Limit	Reporting Limit	Dilution Factor	Prep Date - Analysis Date/Time	QC Batch
03TP09-0506-01	C7E040173 001	JV93R1A6	ND	mg/kg	0.12	0.63	1	5/8/2007 - 5/10/2007 15:05	7128413
03TP09-0508-02	C7E040173 002	JV9331AH	ND	mg/kg	0.12	0.63	1	5/8/2007 - 5/10/2007 15:05	7128413
03TP10-0405-01	C7E040173 003	JV9351AH	0.14 B	mg/kg	0.12	0.61	1	5/8/2007 - 5/10/2007 15:05	7128413
03TP10-0304-02	C7E040173 004	JV9391AH	ND	mg/kg	0.12	0.60	1	5/8/2007 - 5/10/2007 15:05	7128413

# Willow Grove CTO 003

## ***Percent Solids***

**Lab Name:** STL PITTSBURGH      **Method:** MCAWW 160.3 MOD  
**Client Name:** Tetra Tech NUS, Inc      **Lot Number:** C7E040173  
**Matrix:** SOLID

### Total Residue as Percent Solids

Client Sample ID	Sample Number	Workorder	Result	Units	Min. Detection Limit	Reporting Limit	Dilution Factor	Prep Date - Analysis Date/Time	QC Batch
03TP09-0508-01	C7E040173 001	JV93R1AA	79.9	%	0.0		1	5/4/2007 - 5/5/2007 09:36	7124498
03TP09-0508-02	C7E040173 002	JV9331AJ	79.4	%	0.0		1	5/4/2007 - 5/5/2007 09:36	7124498
03TP10-0405-01	C7E040173 003	JV9351AJ	81.9	%	0.0		1	5/4/2007 - 5/5/2007 09:36	7124498
03TP10-0304-02	C7E040173 004	JV9391AJ	82.7	%	0.0		1	5/4/2007 - 5/5/2007 09:36	7124498

## **APPENDIX C**

### **Support Documentation**

**CASE NARRATIVE  
TETRATECH NUS, INC.  
WILLOW GROVE  
CT0 003**

**STL Lot #: C7E040173**

**Pesticides:**

The reporting limits for the aqueous sample were adjusted according to the amount of sample extracted.

All compounds <20% RSD will use and average response factor curve if no visible improvement is accomplished using a curve. The curve plot is provided for any compound that required a "best-fit" evaluation.

Continuing calibration standards G057234 and G057246 had endosulfan sulfate not meet the 15%D criteria (-22.5% and -15.9% respectively). This compound was not detected in the samples and met criteria in the continuing calibration standards on the MR2 column. All data was reported.

**PCBs:**

The reporting limits for the aqueous sample were adjusted according to the amount of sample extracted.

**Metals:**

Sample 03TP10-0405-01 was over the instruments linear range for manganese and required a dilution. This sample was also analyzed at a dilution for selenium and thallium due to inter-element corrections associated with manganese.

The method blanks had analytes detected at concentrations between the MDL and the reporting limit. The results were flagged with a "B" qualifier. Any sample associated with a method blank that had the same analyte detected had the result flagged with a "J" qualifier.

**General Chemistry:**

There were no problems associated with the analyses.

**Chain of  
Custody Record**

STL-4124 (0901)

Client

Tetra Tech NUS

Address  
600 Clark AveCity  
King of Prussia State PA Zip Code 19406

Project Name and Location (State)

NAS JRB Willow Grove, PA

Contract/Purchase Order/Quote No.

Project Manager

Russell Turner

Telephone Number (Area Code)/Fax Number  
610 491 9688**STL**

Severn Trent Laboratories, Inc.

Date  
5/3/07

Lab Number

Chain of Custody Number  
**312317**Page 1 of 1

Site Contact Lab Contact

Analysis (Attach list if  
more space is needed)Carrier/Waybill Number  
Fed Ex 8545 6865 8541Special Instructions/  
Conditions of ReceiptMatrix Containers &  
PreservativesSample I.D. No. and Description  
(Containers for each sample may be combined on one line)

	Date	Time	At	Aqueous	Sed.	Sed.	Untested	OC/HR	OC/HR	HCl	NH3H	ZnAC	NH3H
03TP09-0506-01	5/3/07	0820			✓		✓						
03TP09-0506-02	5/3/07	0850			✓		✓						
03TP10-0405-01	5/3/07	1405			✓		✓						
03TP10-0304-02	5/3/07	1430			✓		✓						
03TB-04	5/3/07	0240			✓					✓			
03-FB-050307	5/3/07	1530			✓		✓		✓	✓			

22 Trip Blank  
Field Blank

## Possible Hazard Identification

 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months (A fee may be assessed if samples are retained longer than 1 month)

## Turn Around Time Required

 24 Hours  48 Hours  7 Days  14 Days  21 Days  Other \_\_\_\_\_

## OC Requirements (Specify)

## 1. Relinquished By

Donald Whalen

Date 5/3/07 Time 1830

1. Received By  
J. Brink

Date 5/3/07 Time 915

## 2. Relinquished By

Date \_\_\_\_\_ Time \_\_\_\_\_

2. Received By

Date 5/4/07 Time \_\_\_\_\_

## 3. Relinquished By

Date \_\_\_\_\_ Time \_\_\_\_\_

3. Received By

Date \_\_\_\_\_ Time \_\_\_\_\_

## Comments

**STL-Pittsburgh**  
**Metals Data Reporting Form**

**Interference Check Standard A**

Instrument: ICPST

Units: ug/L

Chart Number: T70516B.ARC

Acceptable Range: 80% - 120%

Standard Source: Inorganic Ventures

Standard ID: MET2386-07

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 5/16/2007 11:39 AM	Found	Found	Found	Found
				Found	Found	Found	Found	Found
Aluminum	308.215		500000	467000				
Antimony	220.353	10		0				
Arsenic	189.042	10		-3				
Barium	493.409	200		1				
Beryllium	313.042	4		0				
Cadmium	226.502	5		0				
Calcium	317.933		500000	480000				
Chromium	267.716	5		1				
Cobalt	228.616	50		0				
Copper	324.753	25		-2				
Iron	271.441		200000	197000				
Lead	220.353	3		0				
Magnesium	279.078		500000	517000				
Manganese	257.61	15		4				
Nickel	231.604	40		2				
Potassium	766.491	5000		190				
Selenium	220.353	5		-3				
Silver	328.068	5		0				
Sodium	330.232	5000		-300				
Thallium	190.864	10		-5				
Vanadium	292.402	50		3				
Zinc	213.856	20		7				

## INORGANIC INTERFERENCE CHECK SAMPLE VALIDATION

Affected Analyte	MDL	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Arsenic	2.3	03TP09-0506-01	20		Iron	200000	-3	77142	-1.16	na	na
Barium	0.36	03TP09-0506-01	489.52		Iron	200000	1	77142	0.39	na	na
Chromium	0.82	03TP09-0506-01	143.46		Iron	200000	1	77142	0.39	na	na
Copper	1.4	03TP09-0506-01	200.69		Iron	200000	-2	77142	-0.77	na	na
Manganese	0.27	03TP09-0506-01	331.93		Iron	200000	4	77142	1.54	na	na
Nickel	1	03TP09-0506-01	71.65		Iron	200000	2	77142	0.77	na	na
Selenium	2.9	03TP09-0506-01		U	Iron	200000	-3	77142	-1.16	na	UL
Sodium	139	03TP09-0506-01		U	Iron	200000	-300	77142	-115.71	na	UL
Thallium	3.2	03TP09-0506-01		U	Iron	200000	-5	77142	-1.93	na	UL
Vanadium	2.6	03TP09-0506-01	259.78		Iron	200000	3	77142	1.16	na	na
Zinc	3.5	03TP09-0506-01	96.44		Iron	200000	7	77142	2.70	na	na

Affected Analyte	MDL	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Arsenic	2.3	03TP09-0506-02	22.47		Iron	200000	-3	158320	-2.37	L	na
Barium	0.36	03TP09-0506-02	365.74		Iron	200000	1	158320	0.79	na	na
Chromium	0.82	03TP09-0506-02	49.83		Iron	200000	1	158320	0.79	na	na
Copper	1.4	03TP09-0506-02	482.95		Iron	200000	-2	158320	-1.58	na	na
Manganese	0.27	03TP09-0506-02	412.7		Iron	200000	4	158320	3.17	na	na
Nickel	1	03TP09-0506-02	46.01		Iron	200000	2	158320	1.58	na	na
Selenium	2.9	03TP09-0506-02		U	Iron	200000	-3	158320	-2.37	na	UL
Sodium	139	03TP09-0506-02	223.13		Iron	200000	-300	158320	-237.48	L	na
Thallium	3.2	03TP09-0506-02		U	Iron	200000	-5	158320	-3.96	na	UR
Vanadium	2.6	03TP09-0506-02	152.13		Iron	200000	3	158320	2.37	na	na
Zinc	3.5	03TP09-0506-02	238.45		Iron	200000	7	158320	5.54	na	na

Affected Analyte	MDL	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Arsenic	2.3	03TP10-0304-02	16.34		Iron	200000	-3	145010	-2.18	L	na
Barium	0.36	03TP10-0304-02	1071.3		Iron	200000	1	145010	0.73	na	na
Chromium	0.82	03TP10-0304-02	46.92		Iron	200000	1	145010	0.73	na	na
Copper	1.4	03TP10-0304-02	1222.4		Iron	200000	-2	145010	-1.45	na	na
Manganese	0.27	03TP10-0304-02	9405.8		Iron	200000	4	145010	2.90	na	na
Nickel	1	03TP10-0304-02	104.9		Iron	200000	2	145010	1.45	na	na
Selenium	2.9	03TP10-0304-02		U	Iron	200000	-3	145010	-2.18	na	UL
Sodium	139	03TP10-0304-02	320.2		Iron	200000	-300	145010	-217.52	L	na
Thallium	3.2	03TP10-0304-02		U	Iron	200000	-5	145010	-3.63	na	UR
Vanadium	2.6	03TP10-0304-02	127.37		Iron	200000	3	145010	2.18	na	na
Zinc	3.5	03TP10-0304-02	168.86		Iron	200000	7	145010	5.08	na	na

Affected Analyte	MDL	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level	Est. Interference	Validation Action	Validation Action
Arsenic	2.3	03TP10-0405-01	57.38		Iron	200000	-3	188320	-2.82	na	na
Barium	0.36	03TP10-0405-01	2350		Iron	200000	1	188320	0.94	na	na
Chromium	0.82	03TP10-0405-01	183.97		Iron	200000	1	188320	0.94	na	na
Copper	1.4	03TP10-0405-01	351.81		Iron	200000	-2	188320	-1.88	na	na
Manganese	0.27	03TP10-0405-01	6536.7		Iron	200000	4	8252.5	0.17	na	na
Nickel	1	03TP10-0405-01	127.56		Iron	200000	2	188320	1.88	na	na
Selenium	2.9	03TP10-0405-01		U	Iron	200000	-3	8252.5	-0.12	na	na
Sodium	139	03TP10-0405-01		U	Iron	200000	-300	188320	-282.48	na	UR
Thallium	3.2	03TP10-0405-01		U	Iron	200000	-5	8252.5	-0.21	na	na
Vanadium	2.6	03TP10-0405-01	285.63		Iron	200000	3	188320	2.82	na	na
Zinc	3.5	03TP10-0405-01	231.86		Iron	200000	7	188320	6.59	na	na

*Soil blank*

## METHOD BLANK REPORT

## TOTAL Metals

Client Lot #....: C7E040173

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
	MB Lot-Sample #: C7E080000-178	Prep Batch #...:	7128178			
Aluminum	1.4 J	20.0	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AL
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Antimony	ND	1.0	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AE
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Arsenic	ND	1.0	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AM
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Barium	ND	20.0	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AN
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Beryllium	ND	0.40	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AP
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Cadmium	ND	0.50	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AR
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Calcium	ND	500	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AQ
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Chromium	ND	0.50	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AU
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Cobalt	ND	5.0	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AT
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Copper	ND	2.5	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AV
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	
Iron	ND	10.0	mg/kg	SW846 6010B	05/09-05/16/07	JWGC71AW
		Dilution Factor: 1				
		Analysis Time...: 14:14		Analyst ID.....: 022952	Instrument ID...: TRA	

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## METHOD BLANK REPORT

## TOTAL Metals

Client Lot #....: C7E040173

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>			<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
		<u>LIMIT</u>	<u>UNITS</u>				
Lead	ND	0.30	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AD
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Magnesium	ND	500	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71A0
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Manganese	0.015 J	1.5	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71A1
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Nickel	ND	4.0	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AC
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Potassium	19.5 J	500	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AX
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Selenium	ND	0.50	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AF
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Silver	ND	0.50	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AK
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Sodium	ND	500	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AA
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Thallium	ND	1.0	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AG
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Vanadium	ND	5.0	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AH
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	
Zinc	0.27 J	2.0	mg/kg		SW846 6010B	05/09-05/16/07	JWGC71AJ
		Dilution Factor: 1					
		Analysis Time...: 14:14			Analyst ID.....: 022952	Instrument ID...: TRA	

(Continued on next page)

**STL-Pittsburgh**  
**Metals Data Reporting Form**

**Continuing Calibration Blank Result**

Instrument: ICPST

Units: ug/L

Chart Number: T70516B.ARC

Standard Source: \_\_\_\_\_

Standard ID: \_\_\_\_\_ MBM 5/18/07

Element	WL/ Mass	Report Limit	CCB1 5/16/2007 12:28 PM		CCB2 5/16/2007 1:36 PM		CCB3 5/16/2007 2:41 PM		CCB4 5/16/2007 3:47 PM		CCB5 5/16/07 4:47 pm	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	14.2	U	14.2	U	14.2	U	14.2	U	14.2	U
Antimony	220.353	10	0.9	U	0.9	U	1.9	B	0.9	U	0.9	U
Arsenic	189.042	10	2.3	U	2.3	U	2.3	U	2.3	U	2.3	U
Barium	493.409	200	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Beryllium	313.042	4	0.4	B	0.8	B	0.8	B	0.9	B	0.9	B
Cadmium	226.502	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Calcium	317.933	5000	251.0	U	251.0	U	251.0	U	251.0	U	251.0	U
Chromium	267.716	5	0.8	U	0.8	U	0.8	U	0.8	U	0.8	U
Cobalt	228.616	50	0.4	U	-0.6	B	0.4	U	0.4	U	0.4	U
Copper	324.753	25	1.4	U	1.4	U	1.4	U	-1.8	B	-1.8	B
Iron	271.441	100	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U
Lead	220.353	3	1.6	U	1.6	U	2.4	B	1.6	U	1.6	U
Magnesium	279.078	5000	13.1	U	13.1	U	13.1	U	13.1	U	13.1	U
Manganese	257.61	15	0.3	U	0.4	B	0.3	U	0.3	U	0.3	U
Nickel	231.604	40	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Potassium	766.491	5000	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U
Selenium	220.353	5	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U
Silver	328.068	5	0.4	U	0.4	U	0.4	U	0.4	B	0.4	B
Sodium	330.232	5000	-670.0	B	-630.0	B	-630.0	B	-600.0	B	3.2	U
Thallium	190.864	10	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Vanadium	292.402	50	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U
Zinc	213.856	20	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U

FB

All soils

**STL-Pittsburgh**  
**Metals Data Reporting Form**

**Continuing Calibration Blank Result**

Instrument: ICPST

Units: ug/L

Chart Number: T70516B.ARC

Standard Source: \_\_\_\_\_

Standard ID: \_\_\_\_\_

Element	WL/ Mass	Report Limit	CCB6 5/16/2007 5:57 PM		CCB7 5/16/2007 7:02 PM		CCB8 5/16/2007 8:08 PM		CCB9 5/16/2007 9:13 PM		CCB10 5/16/2007 10:19 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Manganese	257.61	15	0.7	B	0.3	U	0.3	U	0.3	B	0.4	B
Selenium	220.353	5	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U
Thallium	190.864	10	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U

JV935 Mn

**STL-Pittsburgh**  
**Metals Data Reporting Form**

**Initial Calibration Blank Results**

Instrument: ICPST

Units: ug/L

Chart Number: T70516B.ARC

Standard Source: \_\_\_\_\_

Standard ID: \_\_\_\_\_

Element	WL/ Mass	Report Limit	JCB1 5/16/2007 11:28 AM		Found      Q				
			Found	Q					
Aluminum	308.215	200	19.7	B					
Antimony	220.353	10	1.0	B					
Arsenic	189.042	10	2.3	U					
Barium	493.409	200	0.4	U					
Beryllium	313.042	4	0.4	B					
Cadmium	226.502	5	0.5	U					
Calcium	317.933	5000	251.0	U					
Chromium	267.716	5	0.8	U					
Cobalt	228.616	50	0.4	U					
Copper	324.753	25	1.4	U					
Iron	271.441	100	30.0	U					
Lead	220.353	3	1.6	U					
Magnesium	279.078	5000	13.1	U					
Manganese	257.61	15	0.3	U					
Nickel	231.604	40	1.0	U					
Potassium	766.491	5000	500.0	U					
Selenium	220.353	5	2.9	U					
Silver	328.068	5	0.4	U					
Sodium	330.232	5000	-630.0	B					
Thallium	190.864	10	3.2	U					
Vanadium	292.402	50	2.6	U					
Zinc	213.856	20	3.5	U					

**MATRIX SPIKE SAMPLE EVALUATION REPORT**

**TOTAL Metals**

**Client Lot #....:** C7E040173  
**Date Sampled....:** 05/04/07

**Date Received..:** 05/05/07

**Matrix.....:** SOLID

PARAMETER	PERCENT	RECOVERY	RPD	METHOD	PREPARATION-	WORK
	RECOVERY	LIMITS	RPD		ANALYSIS DATE	ORDER #
<b>MS Lot-Sample #:</b> C7E050116-006 <b>Prep Batch #....:</b> 7128178						
Aluminum	NC	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1CV	
	NC	(80 - 120)	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1CW	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Antimony	53 N	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1AM	
	50 N	(80 - 120) 6.6	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1AN	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Arsenic	88	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1C0	
	88	(80 - 120) 0.28	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1C1	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Barium	93	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1C3	
	97	(80 - 120) 3.4	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1C4	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Beryllium	94	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1C6	
	95	(80 - 120) 0.63	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1C7	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Cadmium	83	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1DD	
	82	(80 - 120) 0.82	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1DE	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Calcium	90	(80 - 120)		SW846 6010B	05/09-05/16/07 JWDEL1C9	
	94	(80 - 120) 3.0	(0-20)	SW846 6010B	05/09-05/16/07 JWDEL1DA	
		Dilution Factor: 1				
		Analysis Time...: 16:09		Instrument ID...: TRACEICP Analyst ID.....: 022952		
		MS Run #.....: 7128111				

(Continued on next page)

**MATRIX SPIKE SAMPLE EVALUATION REPORT**

**TOTAL Metals**

**Client Lot #....:** C7E040173

**Date Sampled....:** 05/04/07

**Date Received...:** 05/05/07

**Matrix.....:** SOLID

PARAMETER	PERCENT	RECOVERY	RPD	METHOD	PREPARATION-	WORK
	RECOVERY	LIMITS	RPD		ANALYSIS DATE	ORDER #
Chromium	100	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1DK	
	135 N	(80 - 120) 18 (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1DL	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Cobalt	92	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1DG	
	86	(80 - 120) 6.1 (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1DH	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Copper	101	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1DN	
	97	(80 - 120) 2.1 (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1DP	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Iron	NC	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1DR	
	NC	(80 - 120) (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1DT	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Lead	89	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1AJ	
	89	(80 - 120) 0.13 (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1AK	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Magnesium	93	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1D0	
	103	(80 - 120) 7.3 (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1D1	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				
Manganese	NC	(80 - 120)	SW846 6010B	05/09-05/16/07	JWDEL1D3	
	NC	(80 - 120) (0-20)	SW846 6010B	05/09-05/16/07	JWDEL1D4	
		Dilution Factor: 1				
		Analysis Time...: 16:09	Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111				

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**MATRIX SPIKE SAMPLE EVALUATION REPORT**

**TOTAL Metals**

**Client Lot #....:** C7E040173  
**Date Sampled....:** 05/04/07

**Date Received..:** 05/05/07

**Matrix.....:** SOLID

<b>PARAMETER</b>	<b>PERCENT</b>	<b>RECOVERY</b>	<b>RPD</b>	<b>LIMITS</b>	<b>METHOD</b>	<b>PREPARATION-</b>	<b>WORK</b>
	<b>RECOVERY</b>	<b>LIMITS</b>	<b>RPD</b>			<b>ANALYSIS DATE</b>	<b>ORDER #</b>
Zinc	94	(80 - 120)		SW846 6010B		05/09-05/16/07	JWDEL1A2
	104	(80 - 120) 6.7 (0-20)		SW846 6010B		05/09-05/16/07	JWDEL1A3
		Dilution Factor: 1					
		Analysis Time...: 16:09		Instrument ID...: TRACEICP	Analyst ID.....: 022952		
		MS Run #.....: 7128111					

**MS Lot-Sample #:** C7E050116-006 **Prep Batch #....:** 7144113

<b>Mercury</b>	<b>43 N</b>	<b>(80 - 120)</b>	<b>SW846 7471A</b>	<b>* Moisture.....:</b>	<b>16</b>
	<b>43 N</b>	<b>(80 - 120) 0.0 (0-20)</b>	<b>SW846 7471A</b>	<b>05/24/07</b>	<b>JWDEL1CN</b>
	Dilution Factor: 1			05/24/07	JWDEL1CP
	Analysis Time...: 14:32		Instrument ID...: HGHYDRA	Analyst ID.....: 400491	
	MS Run #.....: 7144073				

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

NC The recovery and/or RPD were not calculated.